

## Supplementary Information-

### **I<sub>3</sub><sup>-</sup> Entrapped Cationic Zn(II) Coordination Polymer: Selective Detection and Dose-Dependent Photocatalytic Degradation of Roxithromycin**

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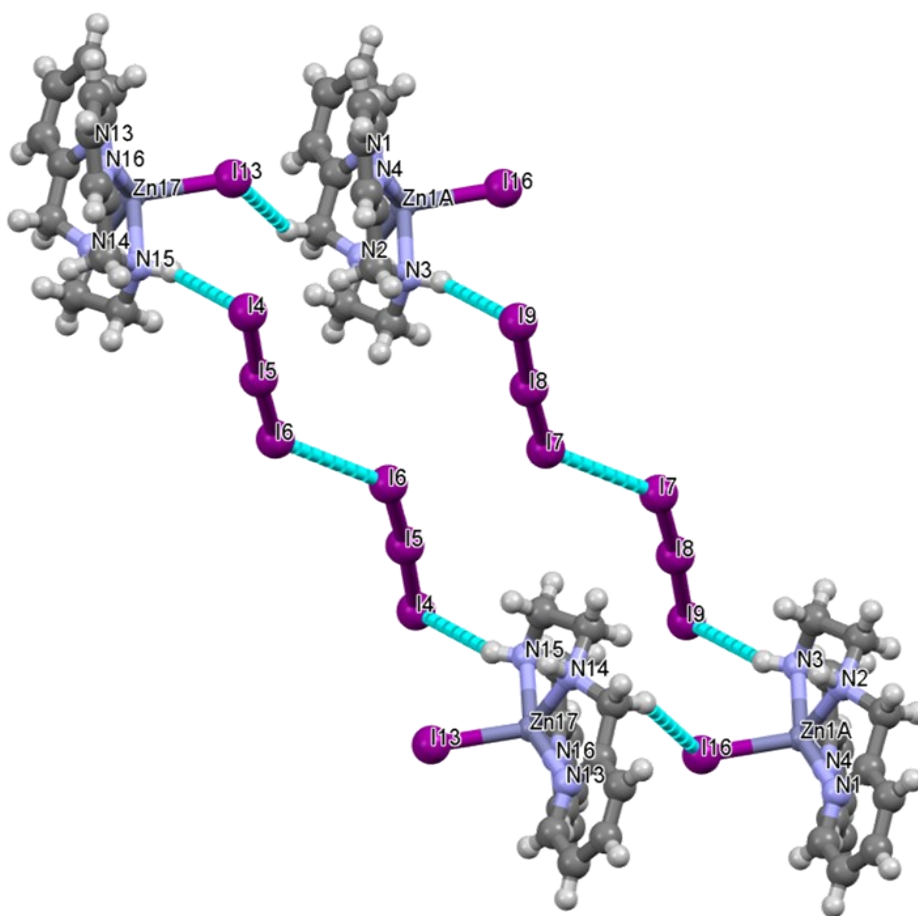
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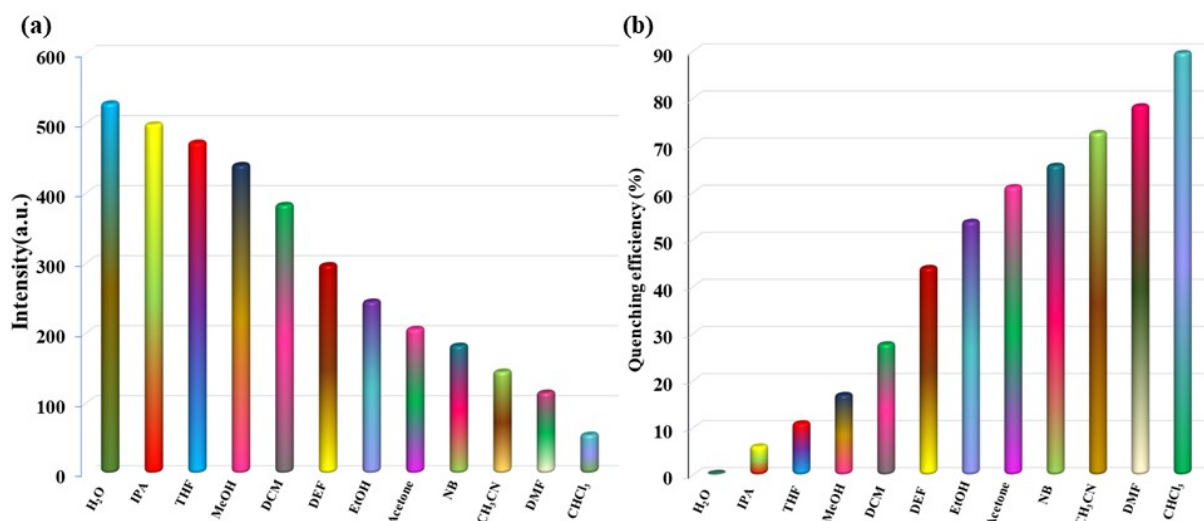
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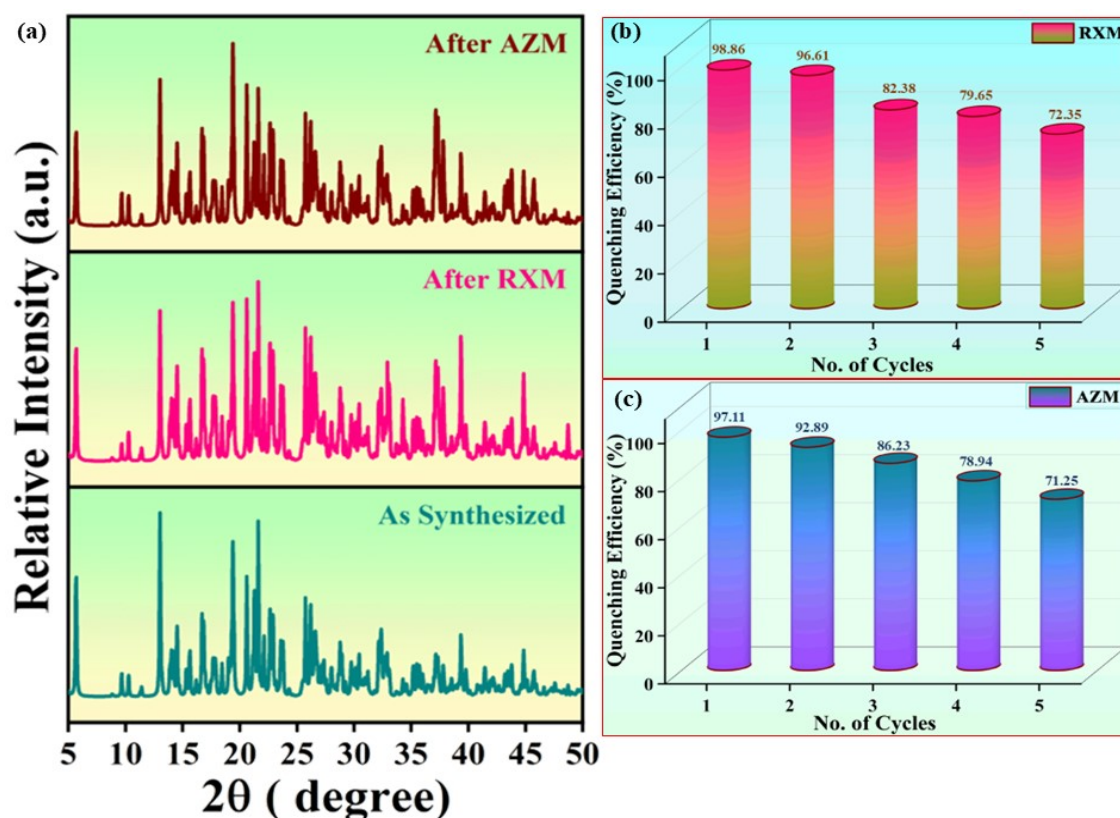
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**Fig. S1.** One-dimensional polymeric non-covalent interaction of Zinc-CP along with crystallography b-axis



**Fig. S2.** (a) The levels of fluorescence intensity exhibited by **Zinc-CP** in the presence of different organic solvents; and (b) The relative quenching efficiencies of **Zinc-CP** dispersed in aqueous solutions containing specific solvents.



**Fig. S3.** (a) PXR D pattern of **Zinc-CP** after luminescence detection of antibiotics RXM and AZM (b) Quenching efficiency (%) of **Zinc-CP** over the course of five cycles and (c) Quenching efficiency (%) of **Zinc-CP** over the course of five cycles.

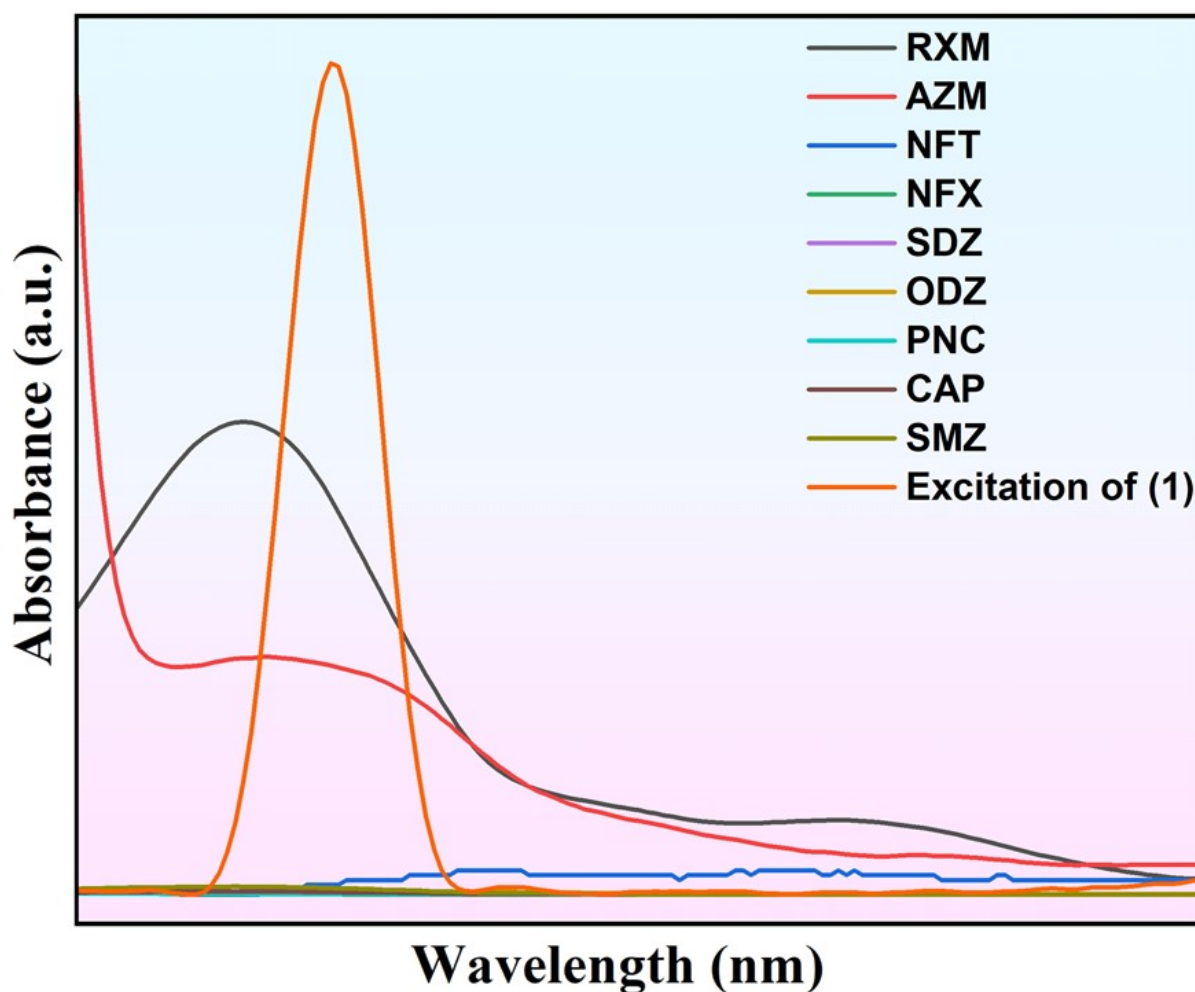


Fig. S4. Spectral overlap between the UV-Vis absorption spectra of Antibiotics (RXM and AZM) with the excitation spectra of **Zinc-CP**.

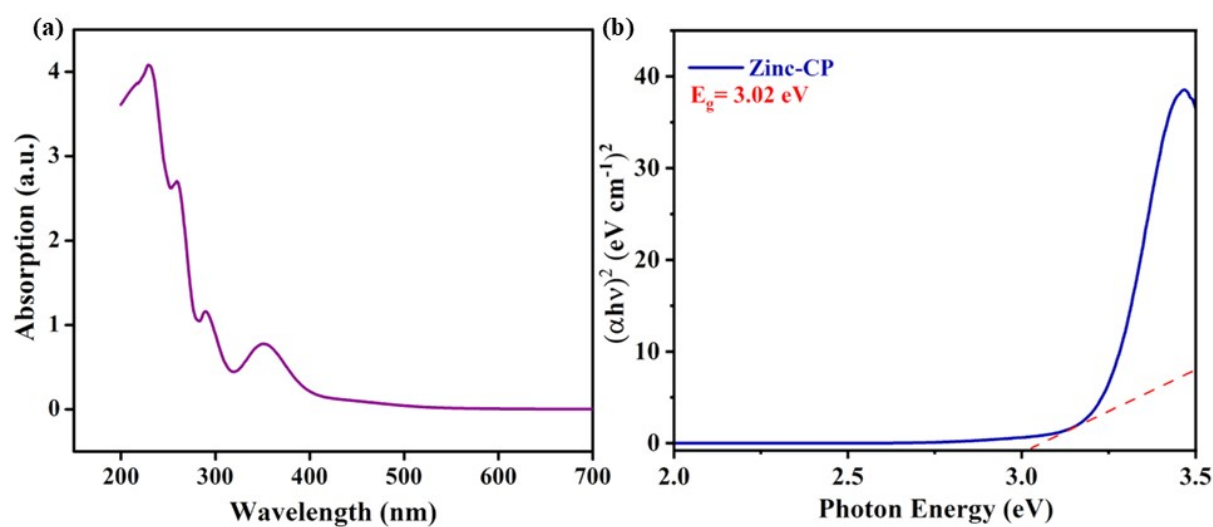
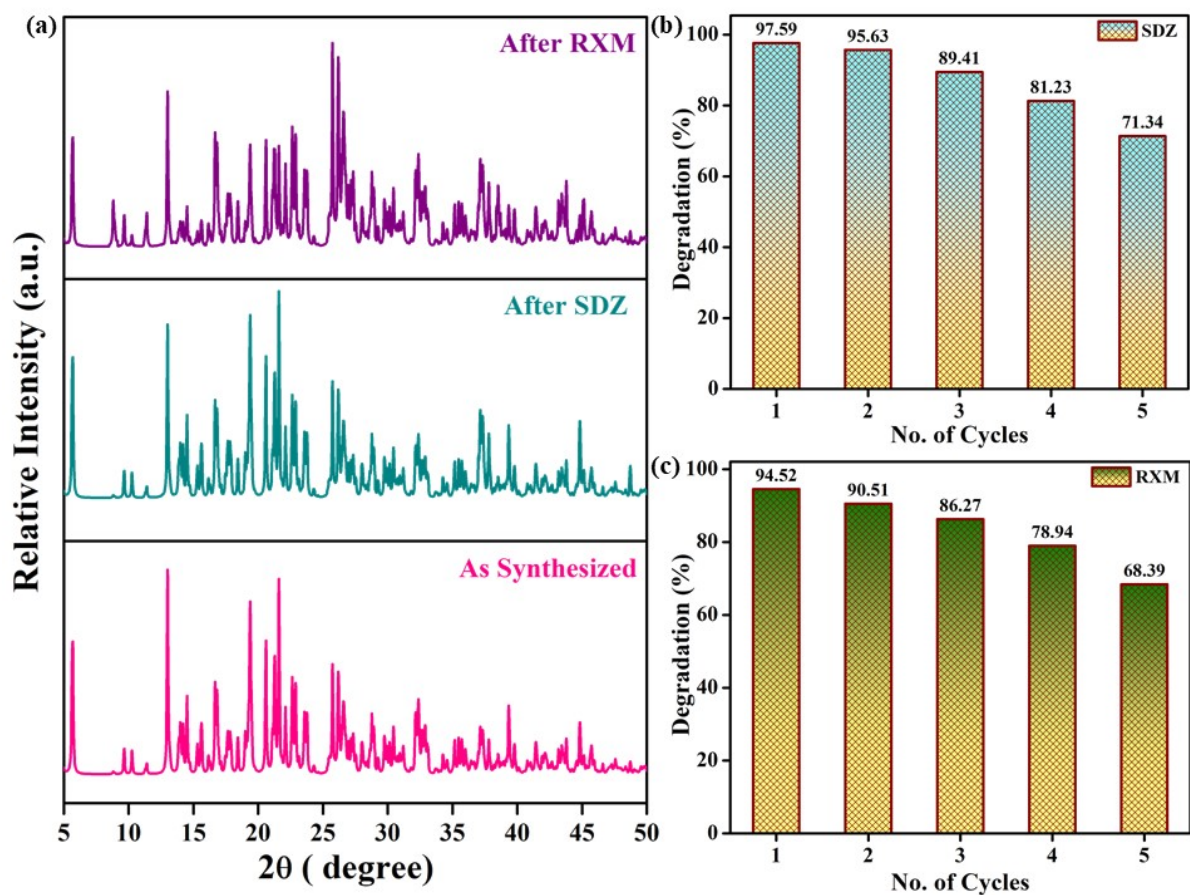
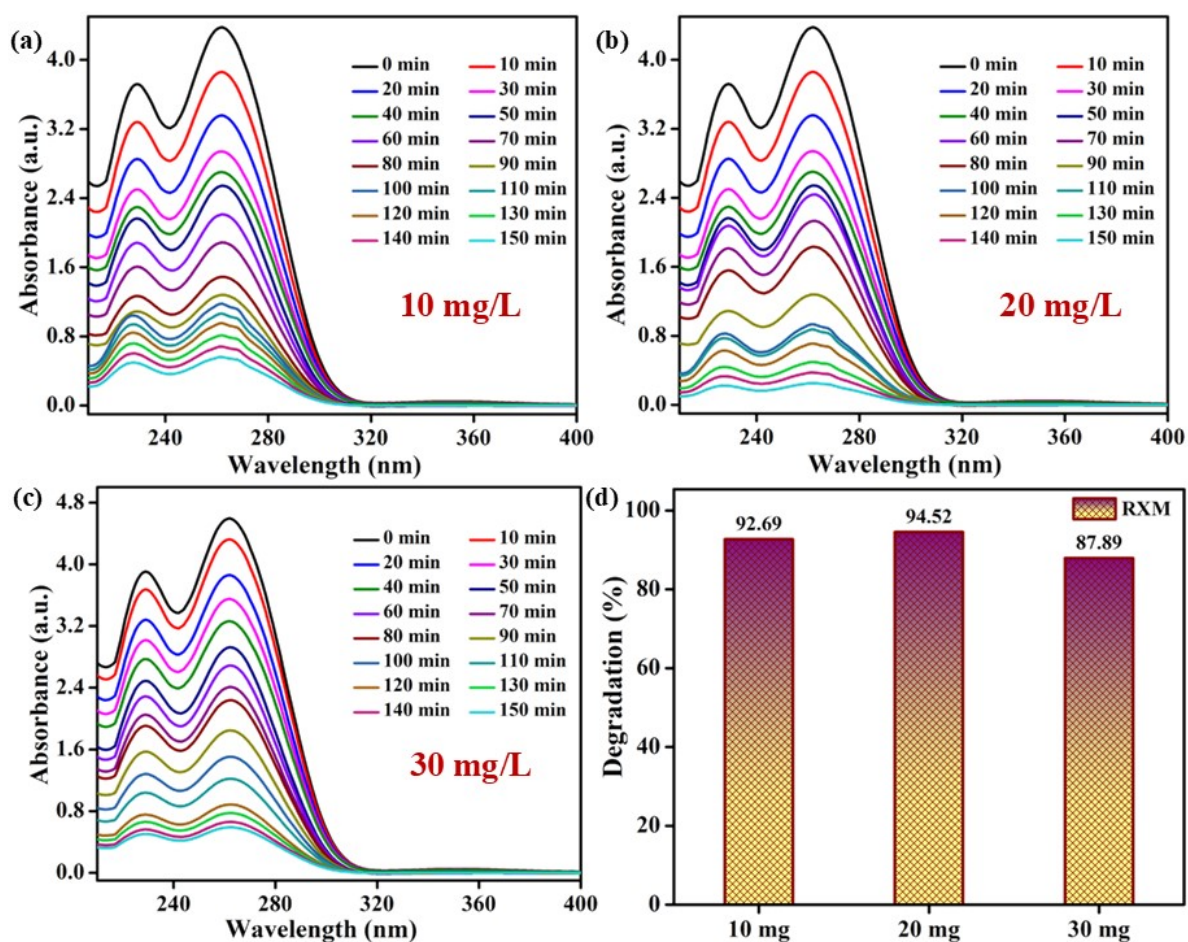


Fig. S5. (a) UV-Visible absorption spectra of **Zinc-CP** (b) Band gap analysis of **Zinc-CP** using Tauc Plot  $(\alpha h\nu)^2 \text{ (eV cm}^{-1}\text{)}^2$  Vs Energy (eV).

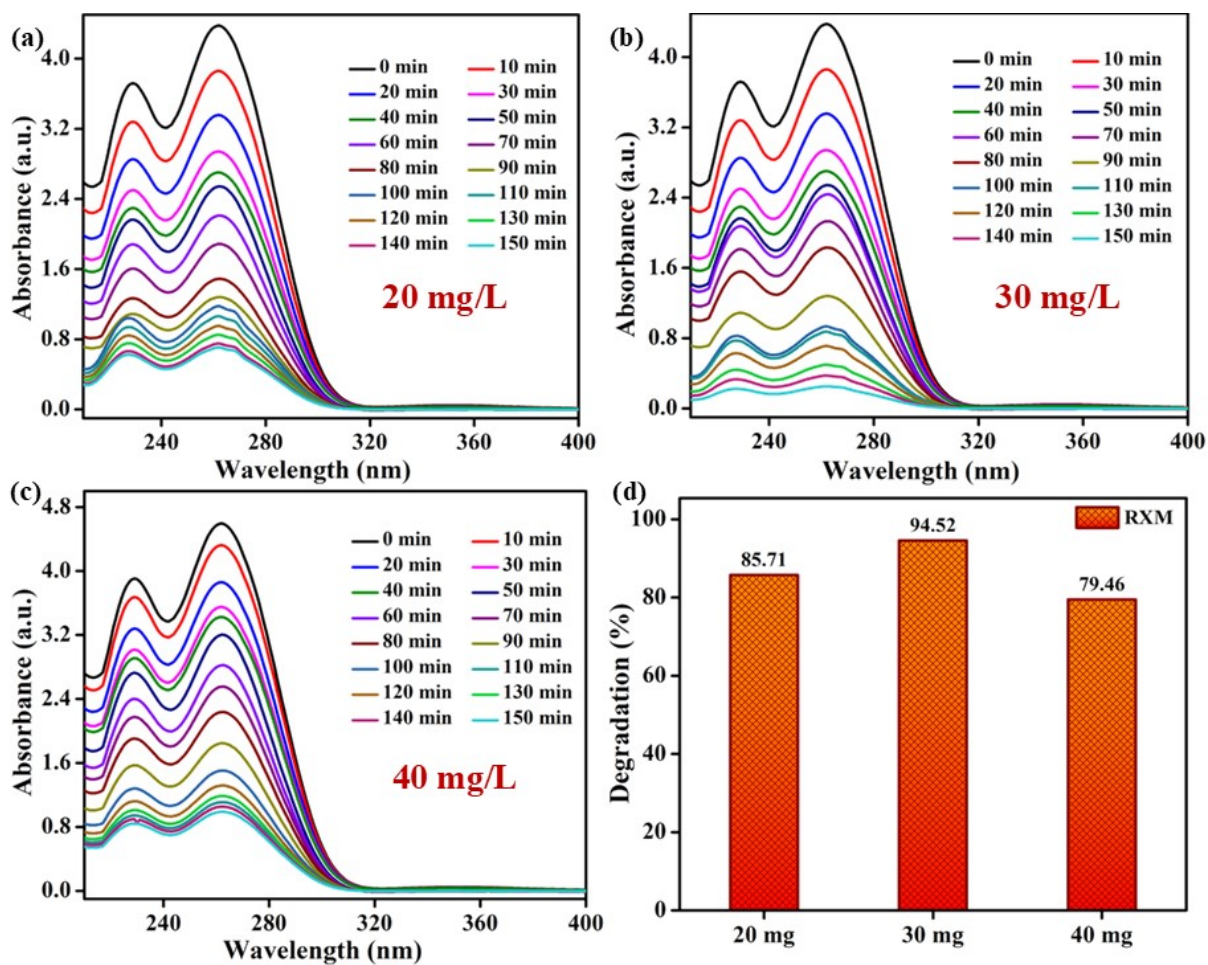


**Fig. S6.** (a) PXRD pattern of **Zinc-CP** and after photocatalytic degradation of antibiotics SDZ and RXM (b) degradation efficiency of **Zinc-CP** over the course of five cycles and (c) degradation efficiency of **Zinc-CP** over the course of five cycles.

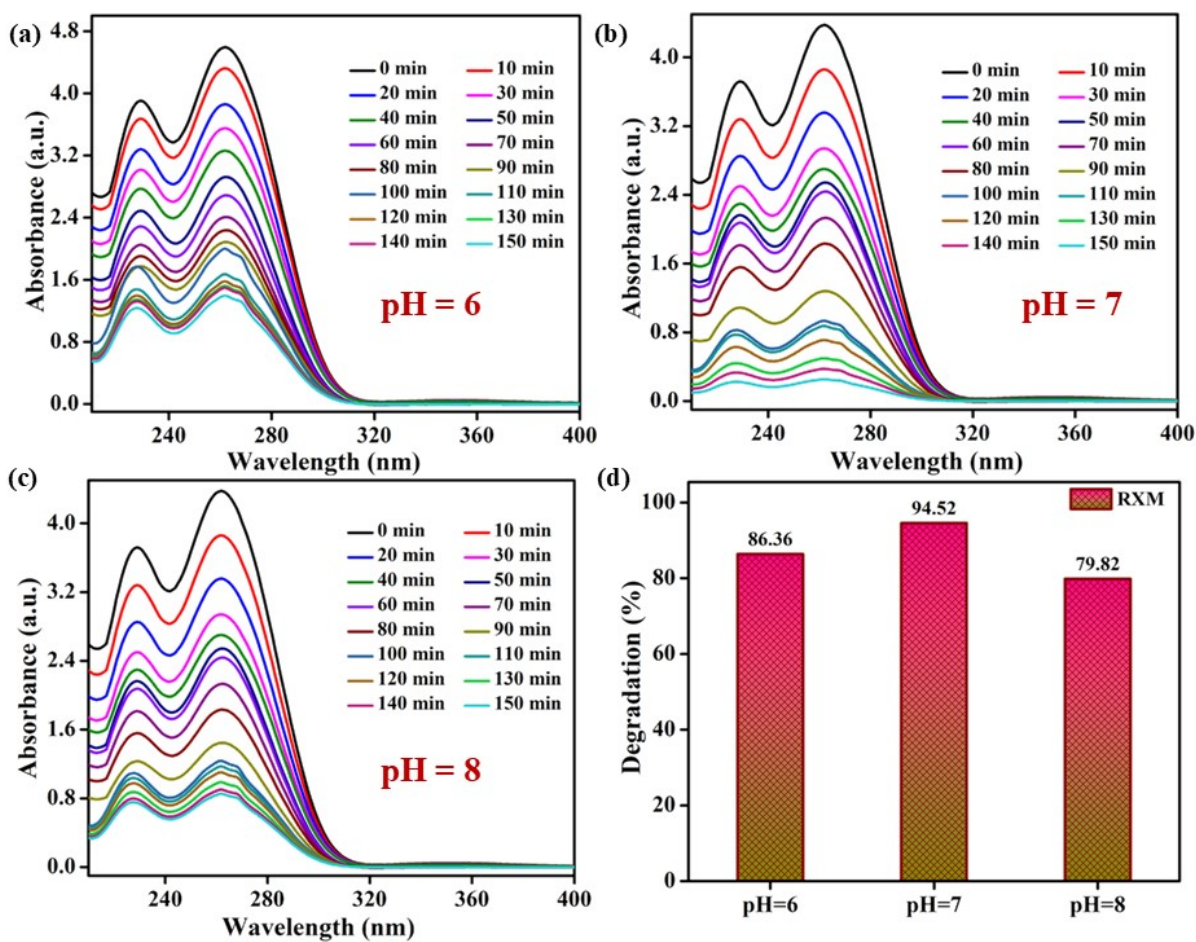




**Fig. S7.** Periodic UV-Vis spectra for RXM in presence of (a) 10 mg photocatalyst **Zinc-CP**; (b) 20 mg photocatalyst **Zinc-CP**; (c) 30 mg photocatalyst **Zinc-CP**; (d) bar plot indicating effect of variable photocatalyst **Zinc-CP** on percentage photodegradation of RXM.

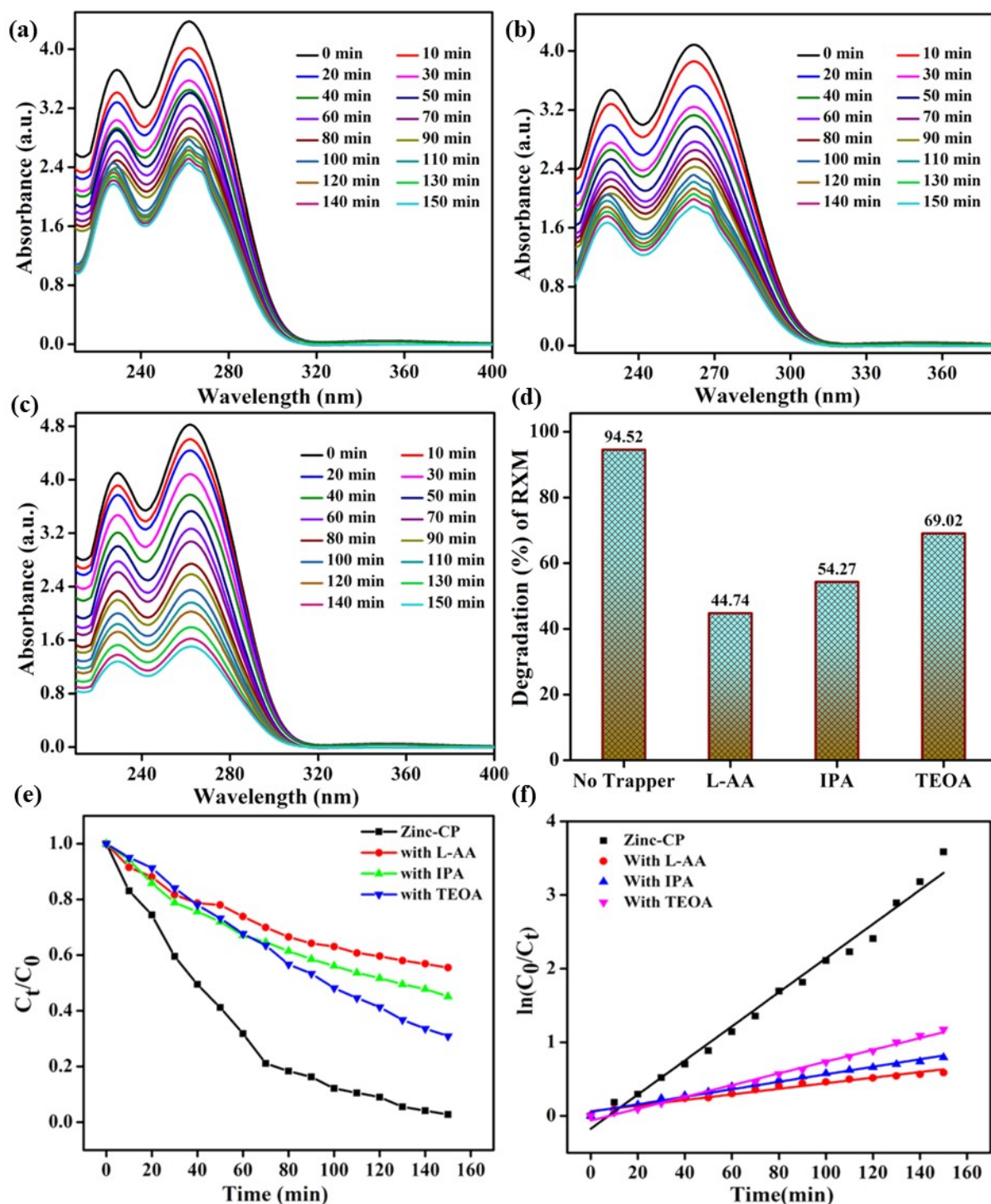


**Fig. S8.** Periodic UV-Vis spectra for **RXM** in presence of (a) 20 mg/L of **RXM**; (b) 30 mg/L of **RXM**; (c) 40 mg/L of **RXM**; (d) bar plot indicating effect of variable **RXM** concentration on percentage photodegradation of **RXM** (photocatalyst dosages was fixed at 20 mg/L).



**Fig. S9.** Periodic UV-Vis spectra for **RXM** in presence of (a) pH = 6; (b) pH = 7; (c) pH = 8; (d) bar plot indicating effect of variable **pH** on percentage photodegradation of **RXM** with **Zinc-CP**.

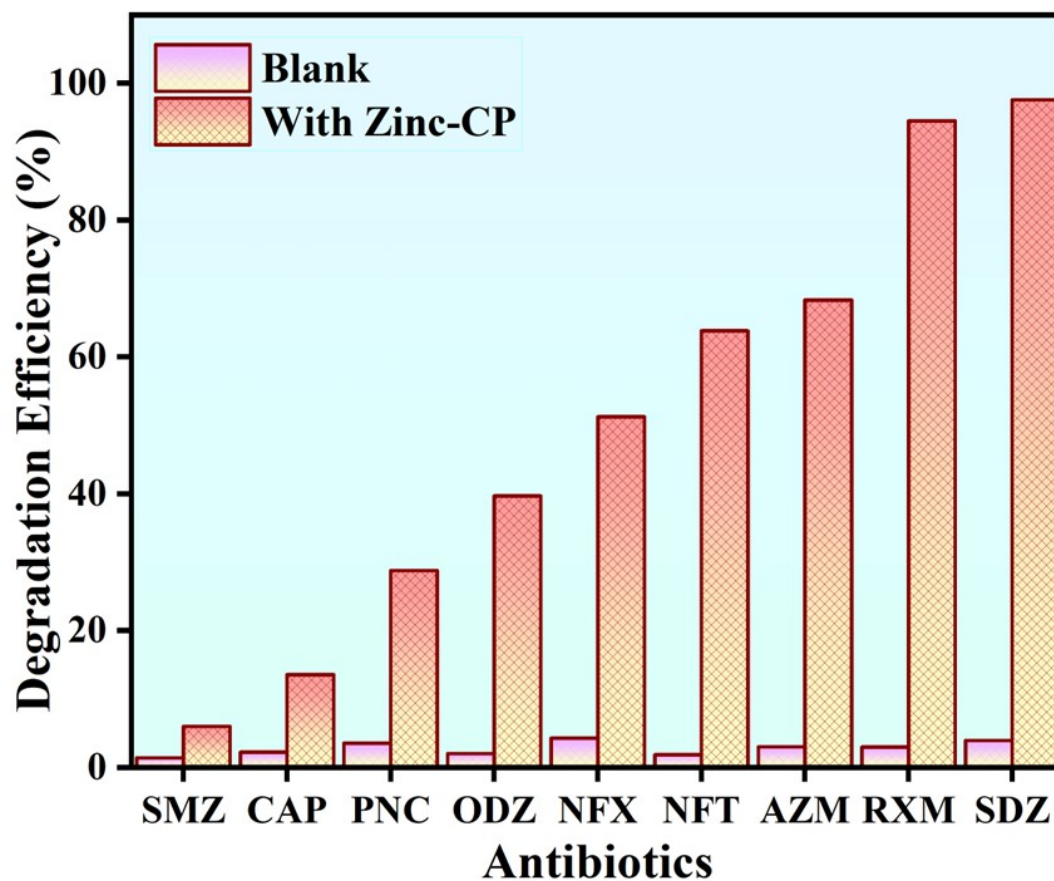




**Fig. S10.** The UV-Vis spectrum for RXM was analyzed in presence of the photocatalyst **Zinc-CP** and different radical trapping agents: (a) L-AA; (b) IPA; (c) TEOA; (d) the effect of trapping agents on the percentage photodegradation of RXM. (e) plot created to illustrate  $C_t/C_0$  vs irradiation time for the photodegradation of RXM with **Zinc-CP** and various trapping agents. (f) a pseudo first-order kinetics plot ( $\ln(C_0/C_t)$  Vs Time) was generated for



the degradation of RXM with **Zinc-CP** and different trapping agents. (The photocatalyst dosage was set at 20 mg/L and the RXM concentration was set at 30 mg/L).



**Fig. S11.** The degradation efficiency percentage of antibiotics with and without Zinc-CP.

**Table S1** Bond Lengths for **Zinc-CP**.

Atom	Atom	Length/Å	Atom	Atom	Length/Å
I13	Zn17	2.5825(19)	I15	Zn19	2.587(2)
Zn17	N13	2.173(11)	Zn19	N5	2.123(11)
Zn17	N14	2.114(13)	Zn19	N6	2.103(12)
Zn17	N15	2.206(12)	Zn19	N7	2.209(11)
Zn17	N16	2.082(13)	Zn19	N8	2.070(10)
I14	Zn18	2.582(2)	I16	Zn1A	2.5808(19)
Zn18	N9	2.093(13)	Zn1A	N1	2.158(14)

<b>Zn18</b>	<b>N10</b>	2.166(12)		<b>Zn1A</b>	<b>N2</b>	2.115(11)
<b>Zn18</b>	<b>N11</b>	2.110(12)		<b>Zn1A</b>	<b>N3</b>	2.186(13)
<b>Zn18</b>	<b>N12</b>	2.145(13)		<b>Zn1A</b>	<b>N4</b>	2.067(12)

**Table S2** Bond Angles for **Zinc-CP**.

<b>Atom</b>	<b>Atom</b>	<b>Atom</b>	<b>Angle/°</b>	<b>Atom</b>	<b>Atom</b>	<b>Atom</b>	<b>Angle/°</b>
<b>N13</b>	<b>Zn17</b>	<b>I13</b>	102.8(3)	<b>N5</b>	<b>Zn19</b>	<b>I15</b>	102.6(3)
<b>N14</b>	<b>Zn17</b>	<b>I13</b>	119.3(4)	<b>N6</b>	<b>Zn19</b>	<b>I15</b>	117.9(3)
<b>N14</b>	<b>Zn17</b>	<b>N13</b>	78.8(5)	<b>N6</b>	<b>Zn19</b>	<b>N5</b>	79.2(5)
<b>N15</b>	<b>Zn17</b>	<b>I13</b>	99.7(3)	<b>N7</b>	<b>Zn19</b>	<b>I15</b>	100.4(3)
<b>N15</b>	<b>Zn17</b>	<b>N13</b>	155.2(5)	<b>N7</b>	<b>Zn19</b>	<b>N5</b>	154.8(5)
<b>N15</b>	<b>Zn17</b>	<b>N14</b>	81.1(4)	<b>N7</b>	<b>Zn19</b>	<b>N6</b>	80.9(5)
<b>N16</b>	<b>Zn17</b>	<b>I13</b>	112.6(3)	<b>N8</b>	<b>Zn19</b>	<b>I15</b>	112.9(3)
<b>N16</b>	<b>Zn17</b>	<b>N13</b>	102.2(5)	<b>N8</b>	<b>Zn19</b>	<b>N5</b>	101.8(5)
<b>N16</b>	<b>Zn17</b>	<b>N14</b>	126.5(5)	<b>N8</b>	<b>Zn19</b>	<b>N6</b>	127.6(5)
<b>N16</b>	<b>Zn17</b>	<b>N15</b>	78.5(5)	<b>N8</b>	<b>Zn19</b>	<b>N7</b>	78.5(5)
<b>C52</b>	<b>N13</b>	<b>Zn17</b>	113.8(10)	<b>C24</b>	<b>N5</b>	<b>Zn19</b>	114.5(10)
<b>C56</b>	<b>N13</b>	<b>Zn17</b>	125.4(11)	<b>C28</b>	<b>N5</b>	<b>Zn19</b>	128.0(10)
<b>C50</b>	<b>N14</b>	<b>Zn17</b>	111.7(10)	<b>C22</b>	<b>N6</b>	<b>Zn19</b>	110.1(9)
<b>C51</b>	<b>N14</b>	<b>Zn17</b>	109.1(9)	<b>C23</b>	<b>N6</b>	<b>Zn19</b>	110.7(9)
<b>C48</b>	<b>N15</b>	<b>Zn17</b>	108.0(10)	<b>C20</b>	<b>N7</b>	<b>Zn19</b>	107.7(10)
<b>C49</b>	<b>N15</b>	<b>Zn17</b>	106.3(9)	<b>C21</b>	<b>N7</b>	<b>Zn19</b>	107.6(9)
<b>C43</b>	<b>N16</b>	<b>Zn17</b>	124.6(11)	<b>C15</b>	<b>N8</b>	<b>Zn19</b>	124.4(10)
<b>C47</b>	<b>N16</b>	<b>Zn17</b>	117.2(12)	<b>C19</b>	<b>N8</b>	<b>Zn19</b>	116.4(12)
<b>N9</b>	<b>Zn18</b>	<b>I14</b>	113.1(3)	<b>N1</b>	<b>Zn1A</b>	<b>I16</b>	102.0(3)
<b>N10</b>	<b>Zn18</b>	<b>I14</b>	100.0(4)	<b>N2</b>	<b>Zn1A</b>	<b>I16</b>	119.8(3)
<b>N10</b>	<b>Zn18</b>	<b>N9</b>	81.2(5)	<b>N2</b>	<b>Zn1A</b>	<b>N1</b>	78.9(5)
<b>N11</b>	<b>Zn18</b>	<b>I14</b>	118.5(4)	<b>N3</b>	<b>Zn1A</b>	<b>I16</b>	100.4(3)

N11	Zn18	N9	127.3(5)		N3	Zn1A	N1	155.0(5)
N11	Zn18	N10	80.0(5)		N3	Zn1A	N2	80.5(5)
N12	Zn18	I14	102.7(4)		N4	Zn1A	I16	112.6(3)
N12	Zn18	N9	101.2(5)		N4	Zn1A	N1	101.5(5)
N12	Zn18	N10	153.9(5)		N4	Zn1A	N2	126.4(4)
N12	Zn18	N11	78.0(5)		N4	Zn1A	N3	79.9(5)
C38	N9	Zn18	114.7(10)		C1	N1	Zn1A	127.1(13)
C42	N9	Zn18	127.7(12)		C5	N1	Zn1A	113.2(11)
C36	N10	Zn18	110.0(9)		C7	N2	Zn1A	109.5(9)
C37	N10	Zn18	107.6(9)		C8	N3	Zn1A	108.6(10)
C34	N11	Zn18	111.9(9)		C9	N3	Zn1A	107.8(9)
C35	N11	Zn18	111.5(9)		C10	N4	Zn1A	117.3(11)
C29	N12	Zn18	126.5(13)		C14	N4	Zn1A	125.2(12)
C33	N12	Zn18	116.1(11)					

**Table S3:** Influence of SDZ and RXM Concentration, Zinc-CP Dosage, and pH Variations on the Photocatalytic Degradation Process.

S.No.	Effect of Reaction Parameters	Degradation (%)	
		SDZ	RXM
<b>1.</b>	<b>Effect of Dosages of Zinc-CP</b>		
a.	10 mg/L	91.69	92.69
b.	20 mg/L	97.59	94.52

c.	30 mg/L	83.59	87.89
<b>2.</b>	<b>Effect of Concentration of Antibiotics (SDZ &amp; RXM)</b>		
a.	20 mg/L	88.58	85.71
b.	30 mg/L	97.59	94.52
c.	40 mg/L	83.59	79.46
<b>3.</b>	<b>Effect of pH level</b>		
a.	pH = 6	87.93	86.36
b.	pH = 7	97.59	94.52
c.	pH = 8	76.17	79.82